Complete Summary

GUIDELINE TITLE

Procedure guideline for gated equilibrium radionuclide ventriculography.

BIBLIOGRAPHIC SOURCE(S)

Scheiner J, Sinusas A, Wittry MD, Royal HD, Machac J, Balon HR, Lang O. Procedure guideline for gated equilibrium radionuclide ventriculography, 3.0. Reston (VA): Society of Nuclear Medicine; 2002 Jun 15. 7 p. [23 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Society of Nuclear Medicine. Procedure guideline for gated equilibrium radionuclide ventriculography, 2.0. Reston (VA): Society of Nuclear Medicine; 1999 Feb. 20 p. (Society of Nuclear Medicine procedure guidelines; no. 2.0).

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Cardiovascular disease

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Risk Assessment

CLINICAL SPECIALTY

Nuclear Medicine
Pediatrics
Radiology

INTENDED USERS

Allied Health Personnel
Physicians

GUIDELINE OBJECTIVE(S)

To assist nuclear medicine practitioners in recommending, performing, interpreting, and reporting the results of gated equilibrium radionuclide ventriculography

TARGET POPULATION

Adults and children with suspected or documented cardiovascular disease

INTERVENTIONS AND PRACTICES CONSIDERED

Gated equilibrium radionuclide ventriculography at rest, during exercise, after pharmacologic or mechanical interventions

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Literature searches were performed. In addition, references known to experts and references from the nuclear medicine community were considered.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Drafts of the guideline were submitted to members of the Guideline Development subcommittee (methodologists) and the Task Force (subject experts). These reviewers indicated on a line-by-line basis any suggestions or recommendations for the revision of the guideline. The percentage of agreement for all reviewers was calculated for each revision and compiled by the Society of Nuclear Medicine (SNM) central office. It is expected that the percentage of agreement will increase with each revision.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

When the Task Force and Guideline Development Subcommittee completed their edits, draft procedure guidelines were distributed to the Society of Nuclear Medicine (SNM) Sample Review Group for comment. (The SNM Sample Review Group is a cross-section of approximately 100 nuclear medicine practitioners representing every field of specialization).

The guideline was approved by the SNM Commission on Health Care Policy, the Board of Directors, and the House of Delegates.

The updated guideline was approved June 15, 2002.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Background Information and Definitions

Gated equilibrium radionuclide ventriculography (RVG) is a procedure in which the patient's red blood cells are radiolabeled and electrocardiograph (ECG)-gated cardiac scintigraphy is obtained. Single or multiple measurements of left and/or right ventricular function are obtained. Alternative terminologies for this technique include gated cardiac blood-pool imaging, multigated acquisition (MUGA), and gated equilibrium radionuclide angiography (RNA).

Data are collected from several hundred cardiac cycles to generate an image set of the beating heart that is presented as a single, composite cardiac cycle. The method can be used to assess (a) regional and global wall motion, (b) cardiac chamber size and morphology, and (c) ventricular systolic and diastolic function, including left and right ventricular ejection fractions (LVEF and RVEF, respectively). An RVG may be acquired at rest, during exercise, or after either pharmacologic or mechanical interventions.

Common Indications

A. Parameters obtained from RVG include the following:
    1. Global ventricular systolic function
    2. Regional wall motion
    3. Ventricular volumes (qualitative or quantitative)
    4. Responses of above parameters to exercise or other interventions
    5. Systolic and diastolic indices
    6. Stroke volume ratios
B. Common clinical settings in which RVG may be useful include:

    1. Known or suspected coronary artery disease (CAD)
        a. CAD without myocardial infarction (MI)
        b. Remote MI
        c. Acute MI (however, these patients usually should not undergo exercise stress in the first 48 hours after acute MI)
    2. To help distinguish systolic from diastolic causes of congestive heart failure (CHF) in patients with known or suspected CHF
    3. Evaluation of cardiac function in patients undergoing chemotherapy
    4. Assessment of ventricular function in patients with valvular heart disease

    An RVG may be used in the conditions listed above for (a) determining long-term prognosis, (b) assessing short-term risk (e.g., preoperative

evaluation), and (c) monitoring response to surgery or other therapeutic interventions.

Procedure

The detailed procedure recommendations in the guideline address the following areas: patient preparation; information pertinent to performing the procedure (i.e., important data that the physician should have about the patient at the time the exam is performed and interpreted); precautions; information regarding the radiopharmaceutical (i.e., ranges of administered activity, organ receiving the largest radiation dose, effective dose), image acquisition; interventions; processing; interpretation/reporting; quality control; and sources of error.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is not specifically stated.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

The intent of the procedure guideline is to describe gated equilibrium radionuclide ventriculography, in order to maximize the diagnostic information obtained in the study while minimizing the resources that are expended.

POTENTIAL HARMS

- It is mandatory that the Occupational Safety and Health Administration (OSHA) guidelines for safe handling of human blood products be followed at all times when techniques labeling autologous red blood cells are used.
- When an in vitro method is used for radiolabeling autologous red blood, a fail-safe policy and procedure must be in place and implemented to assure that misadministration of labeled cells to the wrong patient is prevented.

Subgroups Most Likely to be Harmed

Patients with potentially unstable cardiac rhythms (e.g., paroxysmal supraventricular or ventricular tachycardia) or implanted devices (e.g., implantable defibrillators) may require special precautions, as heart rate response to exercise may be unpredictable.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The Society of Nuclear Medicine has written and approved guidelines to promote the cost-effective use of high quality nuclear medicine procedures. These generic recommendations cannot be applied to all patients in all practice settings. The guidelines should not be deemed inclusive of all proper procedures or exclusive of other procedures reasonably directed to obtaining the same results. The spectrum of patients seen in a specialized practice setting may be quite different than the spectrum of patients seen in a more general practice setting. The appropriateness of a procedure will depend in part on the prevalence of disease in the patient care for patients may vary greatly from one medical facility to another. For these reasons, guidelines cannot be rigidly applied.
- Advances in medicine occur at a rapid rate. The date of a guideline should always be considered in determining its current applicability.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1999 Feb (updated 2002 Jun 15)

GUIDELINE DEVELOPER(S)

Society of Nuclear Medicine, Inc - Medical Specialty Society

SOURCE(S) OF FUNDING

Society of Nuclear Medicine (SNM)

GUIDELINE COMMITTEE

Task Force

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Authors: Jac Scheiner, MD (Brown Medical School, Providence, RI); Albert Sinusas, MD (Yale University School of Medicine, New Haven, CT); Mark D. Wittry, MD (Saint Louis University, St. Louis, MO); Henry D. Royal, MD (Mallinckrodt Institute of Radiology, St. Louis, MO); Josef Machac, MD (Mount Sinai School of Medicine of New York University, NY); Helena R. Balon, MD (William Beaumont Hospital, Royal Oak, MI); and Otto Lang, MD (Third Medical School, Charles University, Prague, Czech Republic)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: Available from the Society of Nuclear Medicine (SNM) Web site.

Print copies: Available from SNM, Division of Health Care Policy, 1850 Samuel Morse Dr, Reston, VA 20190-5316; Phone: 1-800-513-6853 or 1-703-326-1186; Fax: 703-708-9015; E-Mail: ServiceCenter@snm.org.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Society of Nuclear Medicine. Procedure guideline for guideline development. Reston (VA): Society of Nuclear Medicine; 2001 Jun (version 3.0). Electronic copies: Available from the Society of Nuclear Medicine Web site.
- Society of Nuclear Medicine. Performance and responsibility guidelines for NMT. Reston (VA): Society of Nuclear Medicine; 2003. Electronic copies: Available from the Society of Nuclear Medicine Web site.

Print copies: Available from SNM, Division of Health Care Policy, 1850 Samuel Morse Dr, Reston, VA 20190-5316; Phone: 1-800-513-6853 or 1-703-326-1186; Fax: 703-708-9015; E-Mail: ServiceCenter@snm.org.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on July 20, 1999. It was verified by the guideline developer as of August 5, 1999. This NGC summary was updated by ECRI on April 14, 2005.

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DISCLAIMER

NGC DISCLAIMER

Readers with questions regarding guideline content are directed to contact the guideline developer.

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